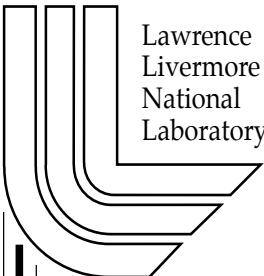


Tables of neutron-induced fission cross sections for various Pu, U, and Th isotopes, deduced from measured fission probabilities

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Tables of neutron-induced fission cross sections for various Pu, U, and Th isotopes, deduced from measured fission probabilities

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Neutron-induced fission cross sections, deduced from surrogate (t, pf) measurements for targets of $^{231,233}\text{Th}$, $^{234,235,236,237,239}\text{U}$, and $^{240,241,243}\text{Pu}$, are tabulated for incident neutron energies of $E_n \approx 0.1 - 2.5$ MeV.

Cross sections for neutron-induced fission of $^{231,233}\text{Th}$, $^{234,235,236,237,239}\text{U}$, and $^{240,241,243}\text{Pu}$ are presented in tabular form for incident neutron energies of $0.1 \lesssim E_n (\text{MeV}) \lesssim 2.5$. The cross sections were obtained by converting measured fission probabilities from (t, pf) reactions on mass- A targets to (n, f) cross sections on mass- $A + 1$ neutron targets, by using modeling to compensate for the differences in the reaction mechanisms. Data from Britt *et al.* [1] were used for the $^{234}\text{U}(t, pf)$ reaction, from Cramer *et al.* [2] for the $^{230,232}\text{Th}(t, pf)$, $^{236,238}\text{U}(t, pf)$, and $^{240,242}\text{Pu}(t, pf)$ reactions, and from Britt *et al.* [3] for the $^{233,235}\text{U}(t, pf)$ and $^{239}\text{Pu}(t, pf)$ reactions. The fission probabilities $P_{(t,pf)}(E_x)$, measured as a function of excitation energy E_x of the compound system formed by the (t, p) reaction, are listed in the tables with the corresponding deduced cross sections as a function of incident neutron energy E_n , $\sigma_{(n,f)}(E_n)$. The excitation energy and incident neutron energy are related by $E_x = E_n + B_n$, where B_n is the neutron binding energy. Comparison with ENDF/B-VI [4] evaluations of the well-measured $^{234,235,236}\text{U}(n, f)$ and $^{240,241}\text{Pu}(n, f)$ cross sections confirms the accuracy of the present results within a 10 % standard deviation above $E_n = 1$ MeV. Below $E_n = 1$ MeV, localized deviations of at most $\pm 20\%$

are observed.

For a full discussion of the model and the deduced (n, f) cross sections, the reader should consult references [5–7]. A brief summary is given here. The (t, pf) reaction is assumed to proceed in two sequential steps: first a compound system is formed by a direct (t, p) reaction and then, after a comparatively long time, the equilibrated nucleus fissions. The fission probability from a compound state at a given excitation energy E_x reached via the (t, p) reaction is then written as a sum over all possible spins and parities J^π of the population probability via the (t, p) reaction times the probability of fission from the state (E_x, J^π) . Individual fission probabilities from the states (E_x, J^π) , calculated using a tightly-constrained double-humped fission model, are fit to the measured (t, pf) fission probabilities. These individual fission probabilities are then recombined with calculated neutron-compound cross sections to produce an estimate of the (n, f) cross section. A renormalization procedure, developed to compensate for limitations of the model is applied and ensures that the final (n, f) cross sections are both robust and generally reliable to within the $\pm 10\%$ uncertainty of the fission-probability data.

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I. TABLES

TABLE I: Measured $^{230}\text{Th}(t, pf)$ fission probabilities and the corresponding deduced $^{231}\text{Th}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)
	Unc.		Unc. (b)
5.100	0.0000	0.0000	
5.150	-0.0020	0.0002	
5.200	-0.0040	0.0004	
5.250	-0.0010	0.0001	
5.300	0.0010	0.0001	
5.350	-0.0010	0.0001	
5.400	0.0000	0.0000	
5.450	0.0060	0.0006	
5.500	0.0040	0.0004	
5.550	0.0060	0.0006	
5.600	0.0090	0.0009	
5.650	0.0120	0.0012	
5.700	0.0180	0.0018	
5.750	0.0250	0.0025	
5.800	0.0520	0.0052	
5.850	0.0770	0.0077	
5.900	0.0930	0.0093	
5.950	0.1240	0.0124	
6.000	0.1530	0.0153	
6.050	0.1840	0.0184	
6.100	0.2230	0.0223	
6.150	0.2360	0.0236	
6.200	0.2520	0.0252	
6.250	0.2660	0.0266	
6.300	0.2800	0.0280	
6.350	0.2930	0.0293	
6.400	0.2590	0.0259	
6.450	0.2820	0.0282	
6.500	0.3090	0.0309	
6.550	0.2770	0.0277	0.112
6.600	0.2570	0.0257	0.162
6.650	0.2060	0.0206	0.212
6.700	0.1910	0.0191	0.262
6.750	0.1830	0.0183	0.312
6.800	0.1650	0.0165	0.362
6.850	0.1550	0.0155	0.412
6.900	0.1410	0.0141	0.462
6.950	0.1290	0.0129	0.512
7.000	0.1250	0.0125	0.562
7.050	0.1190	0.0119	0.612
7.100	0.1180	0.0118	0.662
7.150	0.1060	0.0106	0.712
7.200	0.1000	0.0100	0.762
7.250	0.1040	0.0104	0.812
7.300	0.0870	0.0087	0.862
7.350	0.0840	0.0084	0.912
7.400	0.0760	0.0076	0.962
7.450	0.0730	0.0073	1.012
7.500	0.0680	0.0068	1.062
7.550	0.0710	0.0071	1.112
7.600	0.0670	0.0067	1.162
7.650	0.0770	0.0077	1.212

TABLE I: (Continued).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)
	Unc.		Unc. (b)
7.700	0.0730	0.0073	1.262
7.750	0.0680	0.0068	1.312
7.800	0.0650	0.0065	1.362
7.850	0.0660	0.0066	1.412
7.900	0.0630	0.0063	1.462
7.950	0.0650	0.0065	1.512
8.000	0.0610	0.0061	1.562
8.050	0.0580	0.0058	1.612
8.100	0.0560	0.0056	1.662

TABLE II: Measured $^{232}\text{Th}(t, pf)$ fission probabilities and the corresponding deduced $^{233}\text{Th}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)
	Unc.		Unc. (b)
5.100	-0.0050	0.0005	
5.150	0.0010	0.0001	
5.200	0.0000	0.0000	
5.250	-0.0030	0.0003	
5.300	0.0030	0.0003	
5.350	0.0020	0.0002	
5.400	-0.0010	0.0001	
5.450	0.0020	0.0002	
5.500	0.0070	0.0007	
5.550	0.0070	0.0007	
5.600	0.0100	0.0010	
5.650	0.0090	0.0009	
5.700	0.0070	0.0007	
5.750	0.0100	0.0010	
5.800	0.0120	0.0012	
5.850	0.0200	0.0020	
5.900	0.0320	0.0032	
5.950	0.0440	0.0044	
6.000	0.0660	0.0066	
6.050	0.0710	0.0071	
6.100	0.0760	0.0076	
6.150	0.0730	0.0073	
6.200	0.0730	0.0073	
6.250	0.0690	0.0069	
6.300	0.0730	0.0073	0.109
			0.2013
6.350	0.0810	0.0081	0.159
			0.2082
6.400	0.0910	0.0091	0.209
			0.2478
6.450	0.0910	0.0091	0.259
			0.2545
6.500	0.1100	0.0110	0.309
			0.3082
6.550	0.0980	0.0098	0.359
			0.2767
6.600	0.0960	0.0096	0.409
			0.2718
6.650	0.0840	0.0084	0.459
			0.2340
6.700	0.0720	0.0072	0.509
			0.1958
6.750	0.0580	0.0058	0.559
			0.1547
6.800	0.0560	0.0056	0.609
			0.1468
6.850	0.0610	0.0061	0.659
			0.1567
6.900	0.0640	0.0064	0.709
			0.1607
6.950	0.0560	0.0056	0.759
			0.1375
7.000	0.0480	0.0048	0.809
			0.1154
7.050	0.0500	0.0050	0.859
			0.1182
7.100	0.0470	0.0047	0.909
			0.1097
7.150	0.0370	0.0037	0.959
			0.0858
7.200	0.0510	0.0051	1.009
			0.1181
7.250	0.0420	0.0042	1.059
			0.0971
7.300	0.0340	0.0034	1.109
			0.0785
7.350	0.0330	0.0033	1.159
			0.0761
7.400	0.0390	0.0039	1.209
			0.0899
7.450	0.0320	0.0032	1.259
			0.0737
7.500	0.0320	0.0032	1.309
			0.0736
7.550	0.0340	0.0034	1.359
			0.0781
7.600	0.0360	0.0036	1.409
			0.0827
7.650	0.0420	0.0042	1.459
			0.0964
7.700	0.0350	0.0035	1.509
			0.0803
7.750	0.0360	0.0036	1.559
			0.0825
7.800	0.0350	0.0035	1.609
			0.0802
			0.0080

TABLE II: (Continued).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)
	Unc.		Unc. (b)
7.850	0.0280	0.0028	1.659
7.900	0.0300	0.0030	1.709
7.950	0.0360	0.0036	1.759
8.000	0.0310	0.0031	1.809
8.050	0.0330	0.0033	1.859
8.100	0.0310	0.0031	1.909

TABLE III: Measured $^{233}\text{U}(t, pf)$ fission probabilities and the corresponding deduced $^{234}\text{U}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	Unc.	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	Unc. (b)
5.150	0.0040	0.0004			
5.200	0.0030	0.0003			
5.250	0.0020	0.0002			
5.300	0.0040	0.0004			
5.350	0.0100	0.0010			
5.400	0.0150	0.0015	0.102	0.0515	0.0051
5.450	0.0140	0.0014	0.152	0.0440	0.0044
5.500	0.0150	0.0015	0.202	0.0537	0.0054
5.550	0.0270	0.0027	0.252	0.0988	0.0099
5.600	0.0500	0.0050	0.302	0.1787	0.0179
5.650	0.0740	0.0074	0.352	0.2620	0.0262
5.700	0.0820	0.0082	0.402	0.2891	0.0289
5.750	0.1010	0.0101	0.452	0.3534	0.0353
5.800	0.1480	0.0148	0.502	0.5134	0.0513
5.850	0.1830	0.0183	0.552	0.6304	0.0630
5.900	0.2020	0.0202	0.602	0.6907	0.0691
5.950	0.2230	0.0223	0.652	0.7565	0.0756
6.000	0.2610	0.0261	0.702	0.8830	0.0883
6.050	0.2930	0.0293	0.752	0.9963	0.0996
6.100	0.3160	0.0316	0.802	1.0843	0.1084
6.150	0.3500	0.0350	0.852	1.2125	0.1213
6.200	0.3670	0.0367	0.902	1.2826	0.1283
6.250	0.3570	0.0357	0.952	1.2559	0.1256
6.300	0.3740	0.0374	1.002	1.3174	0.1317
6.350	0.4050	0.0405	1.052	1.4181	0.1418
6.400	0.4010	0.0401	1.102	1.3902	0.1390
6.450	0.3890	0.0389	1.152	1.3355	0.1335
6.500	0.4000	0.0400	1.202	1.3649	0.1365
6.550	0.4030	0.0403	1.252	1.3739	0.1374
6.600	0.4030	0.0403	1.302	1.3775	0.1378
6.650	0.4070	0.0407	1.352	1.3970	0.1397
6.700	0.4000	0.0400	1.402	1.3796	0.1380
6.750	0.3920	0.0392	1.452	1.3587	0.1359
6.800	0.3910	0.0391	1.502	1.3610	0.1361
6.850	0.3720	0.0372	1.552	1.2988	0.1299
6.900	0.4040	0.0404	1.602	1.4134	0.1413
6.950	0.4120	0.0412	1.652	1.4432	0.1443
7.000	0.4010	0.0401	1.702	1.4052	0.1405
7.050	0.4180	0.0418	1.752	1.4643	0.1464
7.100	0.4110	0.0411	1.802	1.4384	0.1438
7.150	0.3960	0.0396	1.852	1.3836	0.1384
7.200	0.3820	0.0382	1.902	1.3319	0.1332
7.250	0.3820	0.0382	1.952	1.3284	0.1328
7.300	0.3850	0.0385	2.002	1.3348	0.1335
7.350	0.3870	0.0387	2.052	1.3371	0.1337
7.400	0.3750	0.0375	2.102	1.2909	0.1291
7.450	0.4060	0.0406	2.152	1.3920	0.1392

TABLE IV: Measured $^{234}\text{U}(t, pf)$ fission probabilities and the corresponding deduced $^{235}\text{U}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
4.851	0.0092	0.0009		
4.907	0.0069	0.0007		
4.944	0.0139	0.0014		
5.000	0.0140	0.0014		
5.047	0.0140	0.0014		
5.103	0.0234	0.0023		
5.159	0.0282	0.0028		
5.206	0.0329	0.0033		
5.253	0.0610	0.0061		
5.300	0.0867	0.0087		
5.347	0.1007	0.0101		
5.394	0.1195	0.0120		
5.450	0.1149	0.0115		
5.506	0.1336	0.0134		
5.553	0.1546	0.0155		
5.610	0.1920	0.0192		
5.657	0.2248	0.0225		
5.704	0.2458	0.0246		
5.761	0.2762	0.0276		
5.808	0.3019	0.0302		
5.864	0.3183	0.0318		
5.911	0.3464	0.0346		
5.958	0.3535	0.0353		
6.005	0.3815	0.0382		
6.062	0.4259	0.0426		
6.108	0.4190	0.0419		
6.155	0.4167	0.0417		
6.212	0.4447	0.0445		
6.268	0.4681	0.0468		
6.306	0.4915	0.0491		
6.362	0.4916	0.0492		
6.409	0.5290	0.0529		
6.465	0.5430	0.0543		
6.512	0.5384	0.0538		
6.549	0.5455	0.0546		
6.615	0.5269	0.0527		
6.661	0.5223	0.0522	0.116	0.1589
6.708	0.5060	0.0506	0.163	0.1554
6.764	0.5014	0.0501	0.219	0.1539
6.810	0.4968	0.0497	0.265	0.1513
6.857	0.5085	0.0508	0.312	0.1529
6.904	0.4992	0.0499	0.359	0.1484
6.960	0.4946	0.0495	0.415	0.1452
7.007	0.4947	0.0495	0.462	0.1436
7.062	0.4574	0.0457	0.517	0.1309
7.118	0.4481	0.0448	0.573	0.1267
7.155	0.4435	0.0444	0.610	0.1246
7.211	0.4366	0.0437	0.666	0.1219
7.267	0.4320	0.0432	0.722	0.1203
7.305	0.4390	0.0439	0.760	0.1220
7.351	0.4134	0.0413	0.806	0.1148
7.417	0.4182	0.0418	0.872	0.1163
7.464	0.4182	0.0418	0.919	0.1167
7.520	0.4183	0.0418	0.975	0.1174
7.566	0.4020	0.0402	1.021	0.1136

TABLE IV: (Continued).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
7.613	0.4044	0.0404	1.068	1.1533
7.669	0.4254	0.0425	1.124	1.2287
7.716	0.3928	0.0393	1.171	1.1489
7.762	0.3859	0.0386	1.217	1.1443
7.809	0.3976	0.0398	1.264	1.1970
7.865	0.4047	0.0405	1.320	1.2418
7.921	0.3907	0.0391	1.376	1.2221
7.968	0.3931	0.0393	1.423	1.2491
8.024	0.3815	0.0382	1.479	1.2334
8.071	0.3839	0.0384	1.526	1.2574
8.117	0.3816	0.0382	1.572	1.2638
8.164	0.3817	0.0382	1.619	1.2763
8.229	0.3818	0.0382	1.684	1.2897
8.267	0.3725	0.0372	1.722	1.2640
8.323	0.3795	0.0380	1.778	1.2940
8.369	0.3679	0.0368	1.824	1.2576
8.426	0.3843	0.0384	1.881	1.3157
8.472	0.3891	0.0389	1.927	1.3323
8.519	0.3821	0.0382	1.974	1.3075
8.566	0.3682	0.0368	2.021	1.2581
8.622	0.3799	0.0380	2.077	1.2949
8.659	0.3683	0.0368	2.114	1.2528
8.715	0.3660	0.0366	2.170	1.2405
8.771	0.3684	0.0368	2.226	1.2435
8.808	0.3474	0.0347	2.263	1.1692
8.864	0.3452	0.0345	2.319	1.1563
8.911	0.3452	0.0345	2.366	1.1516
8.958	0.3430	0.0343	2.413	1.1394
9.014	0.3313	0.0331	2.469	1.0948

TABLE V: Measured $^{235}\text{U}(t, pf)$ fission probabilities and the corresponding deduced $^{236}\text{U}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	Unc. (b)
5.500	0.0070	0.0007	0.374	0.0248
5.550	0.0040	0.0004	0.424	0.0141
5.600	0.0030	0.0003	0.474	0.0105
5.650	0.0070	0.0007	0.524	0.0243
5.700	0.0190	0.0019	0.574	0.0654
5.750	0.0070	0.0007	0.624	0.0239
5.800	0.0310	0.0031	0.674	0.1055
5.850	0.0170	0.0017	0.724	0.0579
5.900	0.0100	0.0010	0.774	0.0344
5.950	0.0360	0.0036	0.824	0.1264
6.000	0.0530	0.0053	0.874	0.1899
6.050	0.0870	0.0087	0.924	0.3168
6.100	0.1190	0.0119	0.974	0.4374
6.150	0.1450	0.0145	1.024	0.5344
6.200	0.1210	0.0121	1.074	0.4461
6.250	0.1800	0.0180	1.124	0.6644
6.300	0.1870	0.0187	1.174	0.6905
6.350	0.2060	0.0206	1.224	0.7595
6.400	0.2120	0.0212	1.274	0.7783
6.450	0.2210	0.0221	1.324	0.8053
6.500	0.2330	0.0233	1.374	0.8401
6.550	0.2630	0.0263	1.424	0.9365
6.600	0.2650	0.0265	1.474	0.9347
6.650	0.2380	0.0238	1.524	0.8365
6.700	0.2700	0.0270	1.574	0.9485
6.750	0.2840	0.0284	1.624	0.9973
6.800	0.2590	0.0259	1.674	0.9093
6.850	0.2560	0.0256	1.724	0.8989
6.900	0.2720	0.0272	1.774	0.9551
6.950	0.2990	0.0299	1.824	1.0489
7.000	0.2750	0.0275	1.874	0.9630
7.050	0.2890	0.0289	1.924	1.0097
7.100	0.2830	0.0283	1.974	0.9861
7.150	0.2640	0.0264	2.024	0.9170
7.200	0.2770	0.0277	2.074	0.9588
7.250	0.2680	0.0268	2.124	0.9242
7.300	0.2750	0.0275	2.174	0.9445
7.350	0.2790	0.0279	2.224	0.9541
7.400	0.2670	0.0267	2.274	0.9091
7.450	0.2690	0.0269	2.324	0.9117
7.500	0.2850	0.0285	2.374	0.9614

TABLE VI: Measured $^{236}\text{U}(t, pf)$ fission probabilities and the corresponding deduced $^{237}\text{U}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
4.850	0.0020	0.0002		
4.900	0.0040	0.0004		
4.950	0.0050	0.0005		
5.000	0.0080	0.0008		
5.050	0.0050	0.0005		
5.100	0.0130	0.0013		
5.150	0.0120	0.0012		
5.200	0.0120	0.0012		
5.250	0.0110	0.0011		
5.300	0.0150	0.0015		
5.350	0.0170	0.0017		
5.400	0.0190	0.0019		
5.450	0.0330	0.0033		
5.500	0.0350	0.0035		
5.550	0.0560	0.0056		
5.600	0.0790	0.0079		
5.650	0.1270	0.0127		
5.700	0.1570	0.0157		
5.750	0.1750	0.0175		
5.800	0.1970	0.0197		
5.850	0.2140	0.0214		
5.900	0.2220	0.0222		
5.950	0.2870	0.0287		
6.000	0.3110	0.0311		
6.050	0.3440	0.0344		
6.100	0.4010	0.0401		
6.150	0.4150	0.0415		
6.200	0.4190	0.0419		
6.250	0.3860	0.0386		
6.300	0.3620	0.0362	0.146	0.6172
6.350	0.3440	0.0344	0.196	0.5792
6.400	0.3410	0.0341	0.246	0.5736
6.450	0.3240	0.0324	0.296	0.5509
6.500	0.3200	0.0320	0.346	0.5595
6.550	0.2920	0.0292	0.396	0.5357
6.600	0.2730	0.0273	0.446	0.5289
6.650	0.2660	0.0266	0.496	0.5402
6.700	0.2610	0.0261	0.546	0.5513
6.750	0.2410	0.0241	0.596	0.5264
6.800	0.2410	0.0241	0.646	0.5387
6.850	0.2450	0.0245	0.696	0.5531
6.900	0.2450	0.0245	0.746	0.5538
6.950	0.2510	0.0251	0.796	0.5666
7.000	0.2260	0.0226	0.846	0.5098
7.050	0.2250	0.0225	0.896	0.5084
7.100	0.2140	0.0214	0.946	0.4857
7.150	0.2070	0.0207	0.996	0.4727
7.200	0.2090	0.0209	1.046	0.4809
7.250	0.1920	0.0192	1.096	0.4456
7.300	0.2050	0.0205	1.146	0.4802
7.350	0.2020	0.0202	1.196	0.4775
7.400	0.2010	0.0201	1.246	0.4794
7.450	0.1970	0.0197	1.296	0.4737
7.500	0.1970	0.0197	1.346	0.4772
7.550	0.1880	0.0188	1.396	0.4584

TABLE VI: (Continued).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
7.600	0.1750	0.0175	1.446	0.4295
7.650	0.1750	0.0175	1.496	0.4325
7.700	0.1910	0.0191	1.546	0.4757
7.750	0.1790	0.0179	1.596	0.4499
7.850	0.1780	0.0178	1.696	0.4581
7.900	0.1770	0.0177	1.746	0.4625
7.950	0.1850	0.0185	1.796	0.4921
8.000	0.1840	0.0184	1.846	0.4992
8.050	0.1890	0.0189	1.896	0.5237
8.100	0.1840	0.0184	1.946	0.5210
8.150	0.1870	0.0187	1.996	0.5407
8.198	0.1696	0.0170	2.044	0.4997
8.247	0.1736	0.0174	2.093	0.5204
8.295	0.1695	0.0170	2.141	0.5156
8.344	0.1695	0.0170	2.190	0.5221
8.392	0.1694	0.0169	2.238	0.5270
8.440	0.1613	0.0161	2.286	0.5058
8.489	0.1653	0.0165	2.335	0.5217
8.537	0.1612	0.0161	2.383	0.5111

TABLE VII: Measured $^{238}\text{U}(t, pf)$ fission probabilities and the corresponding deduced $^{239}\text{U}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
4.581	0.0034	0.0003		
4.637	-0.0006	0.0001		
4.677	-0.0046	0.0005		
4.734	-0.0005	0.0000		
4.782	-0.0004	0.0000		
4.830	-0.0003	0.0000		
4.887	0.0038	0.0004		
4.927	0.0039	0.0004		
4.983	0.0080	0.0008		
5.032	0.0081	0.0008		
5.080	0.0081	0.0008		
5.136	0.0123	0.0012		
5.185	0.0164	0.0016		
5.241	0.0287	0.0029		
5.289	0.0370	0.0037		
5.337	0.0452	0.0045		
5.386	0.0534	0.0053		
5.442	0.0657	0.0066		
5.490	0.0739	0.0074		
5.539	0.0943	0.0094		
5.595	0.0944	0.0094		
5.643	0.1189	0.0119		
5.691	0.1475	0.0147		
5.739	0.1720	0.0172		
5.795	0.2210	0.0221		
5.844	0.2414	0.0241		
5.884	0.2741	0.0274		
5.940	0.3231	0.0323		
5.988	0.3354	0.0335		
6.036	0.3273	0.0327	0.105	0.6423
6.077	0.3110	0.0311	0.146	0.5901
6.141	0.2989	0.0299	0.210	0.5246
6.190	0.2623	0.0262	0.259	0.4355
6.238	0.2624	0.0262	0.307	0.4183
6.287	0.2339	0.0234	0.356	0.3654
6.343	0.2340	0.0234	0.412	0.3688
6.383	0.2259	0.0226	0.452	0.3639
6.440	0.2097	0.0210	0.509	0.3509
6.480	0.2056	0.0206	0.549	0.3532
6.537	0.2016	0.0202	0.606	0.3587
6.585	0.2058	0.0206	0.654	0.3765
6.641	0.1977	0.0198	0.710	0.3736
6.690	0.2059	0.0206	0.759	0.4004
6.730	0.1815	0.0181	0.799	0.3612
6.786	0.1938	0.0194	0.855	0.3982
6.835	0.1776	0.0178	0.904	0.3750
6.875	0.1817	0.0182	0.944	0.3920
6.931	0.1777	0.0178	1.000	0.3940
6.980	0.1696	0.0170	1.049	0.3843
7.028	0.1616	0.0162	1.097	0.3735
7.084	0.1576	0.0158	1.153	0.3720
7.133	0.1658	0.0166	1.202	0.3980
7.181	0.1821	0.0182	1.250	0.4438
7.221	0.1618	0.0162	1.290	0.3989
7.278	0.1578	0.0158	1.347	0.3945

TABLE VII: (Continued).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
7.334	0.1538	0.0154	1.403	0.3890
7.382	0.1580	0.0158	1.451	0.4028
7.431	0.1417	0.0142	1.500	0.3637
7.487	0.1418	0.0142	1.556	0.3663
7.527	0.1419	0.0142	1.596	0.3681
7.576	0.1338	0.0134	1.645	0.3488
7.632	0.1420	0.0142	1.701	0.3725
7.681	0.1421	0.0142	1.750	0.3752
7.737	0.1421	0.0142	1.806	0.3786
7.785	0.1463	0.0146	1.854	0.3937
7.842	0.1382	0.0138	1.911	0.3771
7.882	0.1342	0.0134	1.951	0.3704
7.930	0.1383	0.0138	1.999	0.3875
7.979	0.1384	0.0138	2.048	0.3942
8.043	0.1344	0.0134	2.112	0.3910
8.083	0.1304	0.0130	2.152	0.3843
8.123	0.1386	0.0139	2.192	0.4133
8.180	0.1428	0.0143	2.249	0.4321
8.220	0.1306	0.0131	2.289	0.3987
8.268	0.1347	0.0135	2.337	0.4149
8.317	0.1266	0.0127	2.386	0.3928
8.373	0.1308	0.0131	2.442	0.4083
8.430	0.1268	0.0127	2.499	0.3976
8.462	0.1350	0.0135	2.531	0.4241
8.510	0.1432	0.0143	2.579	0.4507
8.566	0.1311	0.0131	2.635	0.4130

TABLE VIII: Measured $^{239}\text{Pu}(t, pf)$ fission probabilities and the corresponding deduced $^{240}\text{Pu}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$		E_n (MeV)	$\sigma_{(n, f)}(E_n)$	
	Value	Unc.		Value (b)	Unc. (b)
5.246	0.0105	0.0010			
5.292	0.0269	0.0027			
5.342	0.0366	0.0037	0.100	0.1201	0.0120
5.382	0.0479	0.0048	0.140	0.1661	0.0166
5.496	0.0596	0.0060	0.254	0.2134	0.0213
5.545	0.0743	0.0074	0.303	0.2647	0.0265
5.595	0.0797	0.0080	0.353	0.2828	0.0283
5.638	0.0936	0.0094	0.396	0.3301	0.0330
5.698	0.1118	0.0112	0.456	0.3904	0.0390
5.740	0.1342	0.0134	0.498	0.4654	0.0465
5.795	0.1668	0.0167	0.553	0.5737	0.0574
5.839	0.2063	0.0206	0.597	0.7057	0.0706
5.894	0.2509	0.0251	0.652	0.8525	0.0852
5.938	0.2843	0.0284	0.696	0.9605	0.0960
5.993	0.3204	0.0320	0.751	1.0807	0.1081
6.047	0.3292	0.0329	0.805	1.1199	0.1120
6.089	0.3448	0.0345	0.847	1.1849	0.1185
6.140	0.3843	0.0384	0.898	1.3361	0.1336
6.193	0.3990	0.0399	0.951	1.3998	0.1400
6.245	0.4385	0.0439	1.003	1.5459	0.1546
6.293	0.4124	0.0412	1.051	1.4562	0.1456
6.342	0.4467	0.0447	1.100	1.5759	0.1576
6.390	0.4350	0.0435	1.148	1.5274	0.1527
6.435	0.4574	0.0457	1.193	1.5917	0.1592
6.488	0.4714	0.0471	1.246	1.6238	0.1624
6.548	0.4759	0.0476	1.306	1.6355	0.1635
6.592	0.4822	0.0482	1.350	1.6611	0.1661
6.637	0.4628	0.0463	1.395	1.5982	0.1598
6.682	0.4452	0.0445	1.440	1.5411	0.1541
6.799	0.4552	0.0455	1.557	1.5884	0.1588
6.846	0.4614	0.0461	1.604	1.6134	0.1613
6.890	0.4472	0.0447	1.648	1.5653	0.1565
6.948	0.4390	0.0439	1.706	1.5373	0.1537
6.995	0.4469	0.0447	1.753	1.5645	0.1565
7.047	0.4233	0.0423	1.805	1.4803	0.1480
7.101	0.4270	0.0427	1.859	1.4906	0.1491
7.147	0.4392	0.0439	1.905	1.5301	0.1530
7.198	0.4284	0.0428	1.956	1.4884	0.1488
7.247	0.4074	0.0407	2.005	1.4112	0.1411
7.296	0.4247	0.0425	2.054	1.4662	0.1466
7.347	0.4139	0.0414	2.105	1.4235	0.1424
7.402	0.4049	0.0405	2.160	1.3864	0.1386
7.449	0.4077	0.0408	2.207	1.3905	0.1391
7.501	0.4250	0.0425	2.259	1.4429	0.1443
7.546	0.4048	0.0405	2.304	1.3687	0.1369
7.599	0.4264	0.0426	2.357	1.4347	0.1435

TABLE IX: Measured $^{240}\text{Pu}(t, pf)$ fission probabilities and the corresponding deduced $^{241}\text{Pu}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
4.704	0.0083	0.0008		
4.752	0.0165	0.0016		
4.801	0.0206	0.0021		
4.857	0.0247	0.0025		
4.898	0.0167	0.0017		
4.946	0.0330	0.0033		
4.995	0.0534	0.0053		
5.052	0.0656	0.0066		
5.100	0.0820	0.0082		
5.149	0.1227	0.0123		
5.197	0.1553	0.0155		
5.254	0.2123	0.0212		
5.302	0.2326	0.0233		
5.359	0.2734	0.0273		
5.407	0.2775	0.0278		
5.456	0.3182	0.0318		
5.512	0.3386	0.0339		
5.561	0.3631	0.0363		
5.601	0.3875	0.0388		
5.666	0.3795	0.0380		
5.707	0.4202	0.0420		
5.771	0.4894	0.0489		
5.812	0.5098	0.0510		
5.860	0.4976	0.0498		
5.909	0.5099	0.0510		
5.957	0.5994	0.0599		
6.014	0.5873	0.0587		
6.062	0.5914	0.0591		
6.111	0.6159	0.0616		
6.167	0.6363	0.0636		
6.216	0.6810	0.0681		
6.264	0.6770	0.0677		
6.321	0.7137	0.0714		
6.362	0.6812	0.0681		
6.418	0.5960	0.0596	0.109	0.1700
6.467	0.7098	0.0710	0.158	0.2052
6.499	0.6692	0.0669	0.190	0.1938
6.564	0.6327	0.0633	0.255	0.1787
6.604	0.5799	0.0580	0.295	0.1597
6.661	0.6247	0.0625	0.352	0.1666
6.709	0.6289	0.0629	0.400	0.1642
6.750	0.5070	0.0507	0.441	0.1306
6.806	0.5152	0.0515	0.497	0.1310
6.855	0.5356	0.0536	0.546	0.1353
6.895	0.5194	0.0519	0.586	0.1307
6.952	0.4950	0.0495	0.643	0.1244
7.000	0.4870	0.0487	0.691	0.1224
7.057	0.4789	0.0479	0.748	0.1205
7.097	0.4871	0.0487	0.788	0.1227
7.146	0.4872	0.0487	0.837	0.1230
7.202	0.4873	0.0487	0.893	0.1235
7.251	0.4711	0.0471	0.942	0.1201
7.300	0.4793	0.0479	0.991	0.1231
7.356	0.4549	0.0455	1.047	0.1180
7.405	0.4631	0.0463	1.096	0.1214

TABLE IX: (Continued).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
7.461	0.4998	0.0500	1.152	1.3295
7.510	0.4836	0.0484	1.201	1.3049
7.558	0.4877	0.0488	1.249	1.3361
7.607	0.4878	0.0488	1.298	1.3583
7.655	0.5204	0.0520	1.346	1.4726
7.712	0.5327	0.0533	1.403	1.5361
7.760	0.5490	0.0549	1.451	1.6076
7.809	0.4962	0.0496	1.500	1.4751
7.866	0.5004	0.0500	1.557	1.5126
7.914	0.4801	0.0480	1.605	1.4708
7.963	0.4802	0.0480	1.654	1.4902
8.003	0.4640	0.0464	1.694	1.4541
8.043	0.4640	0.0464	1.734	1.4675
8.100	0.4397	0.0440	1.791	1.4069
8.149	0.4154	0.0415	1.840	1.3406
8.197	0.4276	0.0428	1.888	1.3898
8.246	0.4399	0.0440	1.937	1.4382
8.294	0.4278	0.0428	1.985	1.4049
8.343	0.4482	0.0448	2.034	1.4768
8.391	0.4482	0.0448	2.082	1.4801
8.440	0.4198	0.0420	2.131	1.3880
8.488	0.4321	0.0432	2.179	1.4293
8.529	0.3834	0.0383	2.220	1.2679
8.577	0.3834	0.0383	2.268	1.2667

TABLE X: Measured $^{242}\text{Pu}(t, pf)$ fission probabilities and the corresponding deduced $^{243}\text{Pu}(n, f)$ cross section. A $\pm 10\%$ uncertainty associated with the $P_{(t, pf)}$ data is quoted and reflected in the uncertainty on the deduced $\sigma_{(n, f)}$ values (in barns).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
4.496	0.0182	0.0018		
4.552	0.0223	0.0022		
4.600	0.0344	0.0034		
4.656	0.0547	0.0055		
4.705	0.0628	0.0063		
4.753	0.0749	0.0075		
4.793	0.0830	0.0083		
4.857	0.1032	0.0103		
4.897	0.1235	0.0123		
4.953	0.1518	0.0152		
5.002	0.1964	0.0196		
5.050	0.2449	0.0245		
5.106	0.2652	0.0265		
5.154	0.2652	0.0265		
5.202	0.2814	0.0281		
5.258	0.3178	0.0318		
5.306	0.3502	0.0350		
5.354	0.3664	0.0366		
5.402	0.4109	0.0411		
5.451	0.4433	0.0443		
5.507	0.4838	0.0484		
5.555	0.4838	0.0484		
5.603	0.5000	0.0500		
5.659	0.5243	0.0524		
5.699	0.5324	0.0532		
5.755	0.5648	0.0565		
5.812	0.5648	0.0565		
5.852	0.6053	0.0605		
5.900	0.6093	0.0609		
5.956	0.6053	0.0605		
6.004	0.6296	0.0630		
6.061	0.6174	0.0617		
6.101	0.6093	0.0609		
6.157	0.5931	0.0593	0.136	0.1534
6.205	0.5769	0.0577	0.184	0.1450
6.254	0.5607	0.0561	0.233	0.1399
6.310	0.5769	0.0577	0.289	0.1449
6.366	0.5567	0.0557	0.345	0.1409
6.407	0.5243	0.0524	0.386	0.1333
6.455	0.5000	0.0500	0.434	0.1276
6.503	0.4838	0.0484	0.482	0.1235
6.552	0.4636	0.0464	0.531	0.1175
6.600	0.4636	0.0464	0.579	0.1166
6.656	0.4514	0.0451	0.635	0.1129
6.704	0.4190	0.0419	0.683	0.1045
6.753	0.4190	0.0419	0.732	0.1043
6.801	0.4271	0.0427	0.780	0.1061
6.841	0.4028	0.0403	0.820	0.1001
6.897	0.4069	0.0407	0.876	0.1013
6.946	0.4028	0.0403	0.925	0.1005
6.994	0.4028	0.0403	0.973	0.1009
7.050	0.3907	0.0391	1.029	0.0985
7.098	0.4028	0.0403	1.077	0.1023
7.155	0.3907	0.0391	1.134	0.1003
7.195	0.3907	0.0391	1.174	0.1012

TABLE X: (Continued).

E_x (MeV)	$P_{(t, pf)}(E_x)$ Value	E_n (MeV)	$\sigma_{(n, f)}(E_n)$ Value (b)	$\sigma_{(n, f)}(E_n)$ Unc. (b)
7.251	0.4231	0.0423	1.230	1.1123
7.299	0.4150	0.0415	1.278	1.1063
7.347	0.4109	0.0411	1.326	1.1119
7.404	0.4271	0.0427	1.383	1.1777
7.452	0.4150	0.0415	1.431	1.1631
7.500	0.3826	0.0383	1.479	1.0897
7.548	0.3623	0.0362	1.527	1.0480
7.597	0.3826	0.0383	1.576	1.1232
7.653	0.3826	0.0383	1.632	1.1407
7.701	0.3826	0.0383	1.680	1.1544
7.749	0.3704	0.0370	1.728	1.1296
7.798	0.3543	0.0354	1.777	1.0912
7.846	0.3462	0.0346	1.825	1.0756
7.902	0.3462	0.0346	1.881	1.0855
7.950	0.3502	0.0350	1.929	1.1057
7.999	0.3340	0.0334	1.978	1.0612
8.047	0.3259	0.0326	2.026	1.0410
8.087	0.3138	0.0314	2.066	1.0062
8.143	0.3138	0.0314	2.122	1.0106
8.200	0.3057	0.0306	2.179	0.9876
8.240	0.3097	0.0310	2.219	1.0020
8.288	0.3016	0.0302	2.267	0.9769
8.344	0.2814	0.0281	2.323	0.9119
8.393	0.2895	0.0290	2.372	0.9378
8.433	0.2773	0.0277	2.412	0.8972
8.481	0.2692	0.0269	2.460	0.8697